

Responses to National Remedy Review Board

1. The preferred remedy as presented to the Board at the meeting involves a combination of actions to address both radiological and chemical contamination (primarily carbon tetrachloride). The Board agrees with actions to remove organics that are a source of ground water contamination and which may thereby improve the effectiveness of the ongoing soil vapor extraction process and potentially shorten its necessary lifespan. The Board recognizes that the chemical and radiological contamination are commingled and that removal of the chemical wastes would result in removal of the radiological or TRU wastes which are subject to certain regulatory disposal requirements (i.e., disposal at the Waste Isolation Pilot Project (WIPP)). Finally, the Board notes that DOE and the State of Idaho signed a 1995 settlement agreement that addresses TRU wastes at the site, which may influence where and how DOE will manage TRU waste.

Response: EPA has recently received the draft proposed plan for our review from DOE and they are proposing to remove 4.8 acres of buried waste containing high levels of transuranic and organic contamination.

2. The materials presented to the Board did not identify any of the wastes in the SDA as principal threat wastes although it appeared that some of them may meet the definition of principal threat waste. At a minimum, the waste contaminated with high concentrations of organic chemicals and the higher concentrations of radiological or TRU waste appears to be principal threat wastes. The organic waste may be principal threat waste due to its toxicity, mobility, and impact on area ground water. TRU waste may be principal threat waste due to toxicity and high risks from direct contact. The decision documents should identify principal threat wastes and indicate whether the remedial alternatives meet the preference for treatment. For principal threat waste that would not be treated in the preferred alternative (e.g., waste being disposed of at WIPP), the decision documents should explain why treatment is not preferred. The Board recognizes that the WIPP is a unique containment facility.

Response: The issue of principal threat waste has been discussed with DOE and the feasibility study (FS) has been changed to acknowledge that the organic waste could be considered principal threat waste. In addition, a discussion was added to the FS and proposed plan regarding disposal of material at WIPP in regard to treatment.

3. Several of the remedial alternatives would include excavation, sorting, and off-site disposal of waste. However, the package was not clear about what criteria would be used to identify material to be excavated and disposed off-site at the WIPP. From the discussion at the meeting, it is the Board's understanding that proposed criteria would include visual evidence of radiological or TRU contaminated wastes (e.g., filters, sludges, roaster oxides) and field screening for volatile organic contaminants through use of a photo ionization detector (PID). The Board recommends that field screening PID levels in soil and waste be correlated with waste concentrations in soil that can cause potential ground water contamination. This information can be used to develop numeric criteria for excavation of organics, and these criteria should be included in decision documents for the site.



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Response: The primary criterion for waste removal is visual observation. To date, all the organics retrieved have been associated with the transuranic sludge. DOE has agreed to remove and field screen any liquid containers greater than 4 liters for organics and radionuclides. Any organic readings above 500 parts per million will be treated and sent off site for disposal.

4. Based on the information in the package and presented to the Board, some alternatives evaluated by the Region were not adequately described in a way that made it possible to evaluate them based on the NCP's nine criteria and compare to other alternatives. For example, the preferred alternative presented at the meeting was not in the package as a separate alternative; and therefore, it was difficult to determine any differences in cost-effectiveness between alternatives. Additionally, it appears to the Board that an alternative that includes capping, in-situ grouting and continued operation of the OC/VZ system could satisfy the remedial action objectives and it was unclear whether such an alternative was evaluated. The Board recommends that such an alternative be evaluated and that decision documents describe all alternatives in a way that facilitates a clear nine-criteria and comparative analysis.

Response: An alternative has been added to the FS and proposed plan that combines each element of the preferred alternative and compares the alternative against the seven CERCLA criteria. State and Community acceptance will be factored in after the public comment period. The Board is correct that an alternative of capping, in-situ grouting, and operating the OC/VZ system could satisfy the remedial action objectives. Because DOE is committed to retrieving waste with high organic and transuranic content as opposed to leaving the waste in place, they decided not to run this alternative through the 9 CERCLA criteria. It should be noted that retrieval of the organic waste is expected to reduce the time frame that the OC/VZ will be needed.

5. The Board notes that several aspects of the package appear to adopt an approach that may be different from the NCP and Agency guidance, which indicate a point of departure of 10^{-6} cancer risk. EPA has developed a Radionuclide Preliminary Remediation Goals for Superfund on-line calculator to support this 10^{-6} cancer risk point of departure. In addition, from the package it appears the cleanup levels for this remedy were based on a 15 mrem/yr dose from DOE guidance, with no Federal or State applicable or relevant and appropriate requirements (ARAR) as the source of this dose limit, rather than the risk-based level expected for CERCLA remedies. This practice is inconsistent with OSWER directives, including Establishment of Cleanup Levels for CERCLA sites with Radioactive Contamination, (OSWER Directive 9200.4-18, August 1997) and Radiation Risk Assessment at CERCLA Sites Directive 9200.4-31P, December 1999). The Board recommends that the decision documents clearly explain how the approach proposed for this site is consistent with the NCP and EPA guidance. The cleanup levels described in the decision documents should be based on risk or ARARs, not dose recommendations, consistent with the NCP and program guidance.

Response: All the parties agree that the FS presented the risk information incorrectly. The FS and proposed plan now reflect that cleanup levels will be within a 10^{-4} to 10^{-6} risk range, rather than specifying a dose.

6. The risk summary presented in the package did not present a clear discussion of site risks; and as a consequence, it was difficult for the Board to understand the receptors, exposure scenarios, and estimated risks. Consistent with EPA guidance on the evaluation of baseline risks (Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (EPA/540/1-89/002, December 1989)) and development of records of decision (A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents (OSWER 9200.1-23P, July 1999)), the decision documents should more clearly describe the potentially exposed populations, how exposures can occur, and what estimated risks are associated with these exposures.

Response: The package did include a discussion of risk as calculated using specific exposure scenarios. To recap, the highest risk was calculated assuming a future resident builds adjacent to the burial grounds. Other exposure scenarios included a well driller intruding into the both alpha and beta/gamma waste. Primary external risk drivers include cesium-137 plutonium-239 and americium-241. Primary groundwater risk drivers include carbon tetrachloride and Iodine-129. We do agree that the risks for each exposure pathway should be presented in the Proposed Plan, and the Proposed Plan will address cumulative risk.

7. Under CERCLA, selected remedies must meet ARARs, unless waived, and other “to be considered” guidance (TBCs) can be used in the development of these remedies. The Board recommends that the ARAR tables (Tables 8, 9, and 10 in the package) be further refined. ARARs and TBCs should be clearly differentiated from each other; requirements and recommendations that do not actually pertain to remedial alternatives should be eliminated; and the ARARs/TBCs that are retained should be described in sufficient detail to make clear how the requirement affects the alternatives being evaluated. For example, the ARARs table lists DOE orders (even though the description indicates that they are actually TBCs). Dose recommendations (i.e. 500,100, and 4 mrem/year) in DOE Order 5400.5 are listed in the ARARs table; the Board notes that this is inconsistent with OSWER directives, including Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination, (OSWER Directive 9200.4-18, August 1997) and Radiation Risk Assessment at CERCLA Sites (OSWER Directive 9200.4031P, December 1999). The maximum contaminant level (MCL of 4 mrem/yr to the whole body and any critical organ) should generally be cited as ARARs rather than dose recommendation of 4 mrem/yr effective equivalent in DOE Order 5400.5. The decision documents should explain what particular recommendations from DOE Orders may be appropriate as TBCs at this particular site. In addition, the RCRA location standards applicable to new TSD facilities are identified as ARARs, even though no new RCRA TSD is proposed as part of the remedy. The RCRA closure and post-closure standards, on the other hand, appear to be ARARs that could have a significant impact on the remedy; these requirements should be identified with more specificity as to how they may relate to the cleanup at this site. Finally, the Board notes that Executive Orders are not ARARs, but regulations that implement them may be.

Response: The agencies agree with the Board’s recommendation and the ARARs table in the FS has been changed as suggested.

8. The alternatives in the package presented to the Board included a variety of approaches for waste compaction prior to cap construction, especially for Pad A. Based on the package and

the information presented to the Board, it appears that sufficient information on the advantages and disadvantages of each approach, including short-term and long-term effectiveness and safety, is not currently available. The Board recommends that the selected remedy include a pilot study of compaction methods to ensure that the best approach for this site is implemented.

Response: The agencies agree that a pilot study may be needed to select the appropriate compaction method. We have deferred the decision on which particular technologies to employ until remedial design.

9. The preferred alternative includes among other items, removal of source material, capping, and continued operation of the existing soil vapor extraction system to address VOCs in the subsurface and limit VOC migration to ground water. The Region's presentation to the Board indicated that an extensive subsurface monitoring system using innovative techniques is present within and adjacent to the SDA. Given the complex hydrogeologic setting at the SDA and the uncertainties in model predictions, monitoring VOC concentrations and trends will likely be important for determining the success of the remedial actions. The decision documents should provide information regarding the plan to monitor the impact of remedial actions on VOC concentrations in the vadose zone and the adequacy of the subsurface monitoring system to evaluate these impacts.

Response: We agree. Although not presented in the Board package, a monitoring plan already exists for the operable unit and this plan will be enhanced and will carry into the future.

10. The preferred alternative includes an evapo-transpiration (ET) cap to prevent infiltration and subsequent migration of contaminants. Typically, a key factor in the design of an ET cap is the amount of rainfall and its distribution throughout the year. The ET cap would be designed for what is now an arid environment with 8" annual average precipitation. However, given the nature and long life of contaminants at this site (radioactivity for thousands of years), meteorological conditions could change over the lifetime of this remedy. A substantial increase in average annual precipitation could make the ET cap ineffective. This type of climate change could also impact hydrologic conditions at the site, because the area proposed for capping is currently in the floodplain of a dry wash and protected against occasional flash floods by berms. The Board recommends that the decision documents discuss the potential impact of climate change on the effectiveness of an ET cap and what mechanisms might be used to assess continued effectiveness of the ET cap in changing climatic conditions, (e.g, to protect the cap from the effects of flooding in the long-term).

Response: The agencies have not had detailed discussions regarding cap design, but the Region envisions a cap that has the holding capacity to weather a 500 year storm event. The ROD will dictate performance objectives the cap must meet.